

REMARKS/ARGUMENTS

Double Patenting

In response to the double patenting rejection, there is enclosed a Terminal Disclaimer in respect of U.S. Patent 6,852,439.

Claim Rejections U.S.C. 102(b)

Claims 28-54 stand rejected under 35 U.S.C 102(b) as being anticipated by Schmid et al. This rejection is respectfully traversed for the reasons given below.

Applicant had earlier argued that the Schmid et al. reference fails to disclose the invention as presently claimed, and more particular fails to provide an enabling disclosure. The Examiner maintains an argument that Schmid et al. do indeed anticipate the present invention and that the onus is on the applicant to show that it is not enabling; the argument is maintained that Schmid et al fails to disclose many aspects of the present invention as claimed so as clearly failing to provide an enabling disclosure. As detailed below, it is submitted that the Examiners analysis of the Schmid et al. reference is based on a combination of hindsight analysis, derived from knowledge of the present invention, and an apparent willful misreading of the Schmid et al. reference.

As noted in earlier arguments, Schmid et al. are essentially concerned with providing adhesive bonds between different layers and elements within a fuel cell stack, and in an essentially conventional manner. Thus, any one of figures 3a-, 4a-4c, 5a and 5b of the Schmid et al. reference show, the intention is to provide seals between adjacent plates on which the seal is provided by an "adhesive bond" between adjacent plates.

It can be noted that Schmid et al., in a style common to patent specifications, includes sweeping generalizations about adhesive compositions and the manner in which they

can be applied, but nowhere suggests or clearly discloses a technique in which a sealing composition is injected into a groove network of a fuel cell stack after it has been assembled, and thus clearly do not disclose any structure with a "groove network" in any comparable to the present invention.

The Examiner argues, for a product claim, analysis should be based on the product itself; this position is accepted here only for the purpose of argument. It is submitted that, in any event, a comparison of the actual structure or product features of Schmid et al. shows numerous differences from the present invention.

The Examiner has cited extensive passages from what Schmid et al. on pages 4 and 5 of the office action though the relevance of these is not understood. The passage from Schmid et al. discussing the possibility of providing openings outside of the electrochemically active area of MEA 5 seems to have no relevance to the issue of sealing the stack. Clearly in the Schmid et al. reference, such rearrangement necessarily requires a different arrangement of the bonding agent etc.

What all of this overlooks is that Schmid et al. do not disclose a "groove network". The Examiner had referred to applicant's earlier response where we had argued that "Schmid et al. do not teach providing a groove network that extends through a plurality of elements... if the grooves in the different elements are to be connected, then the figures would need to show some connecting groove." In reply, the Examiner has argued "However, the applicant has not defined the type of connection intended (physical connection, electrical connection, operative connection)".

This, it is submitted amounts to a willful misreading of the claimed invention, or at the very least the Examiner is failing to focus on the invention as claimed. Applicant's earlier comments had been provided by way of argument, and can be readily interpreted by any reasonable person. More importantly, the question should be: how is this feature defined in the claims? Turning to the claim language, claim 1 calls for "at least one groove network extending through the electrochemical cell assembly, and including at least one

filling port for the at least one groove network". With reference to MPP 2111.01, III this makes it clear that the claims must be given their "plain meaning". Thus this section starts off with the following citation;

"The ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313.

It is submitted that a "groove network", in the context of the specification and to a skilled person would give no difficulty in interpretation. A groove necessarily implies some open channel or the like, that permits flow of a fluid, either a liquid or a gas. The phrase "groove network" can be readily interpreted as meaning a series of grooves or groove sections connected together so as to permit passage of fluid or gas between them. In that sense the grooves are "connected". It is submitted that, focusing on the claim language and not any arguments submitted, this phrase gives no difficulty in interpretation.

At this time, no further comment is made on the issue of "analogous art", it is simply noted again that Schmid et al. fail to teach all the features of the invention as claimed.

To emphasis the advantages of the invention, it had been previously argued that the invention provides a modular concept. The Examiner has focused on this and then argued that the present claims do not recite "a groove network extending through the module". What the claims do define is a group network "extending through the electrochemical cell assembly", and this feature is not taught in the art.

With respect to the "at least one filling port for the groove network", the Examiner's analysis of this feature appears to be the most egregious example of hindsight analysis and willful misreading. The Examiner referred to figures 1a, 1b, 1c, 1d of the Schmid et

al. for showing fluid openings that operate as "fluid filling ports". This is completely confusing the function of these ports and the need for these ports for operation of a fuel cell stack, e.g. for passage of a fuel gas, an oxidant, and a coolant as required. These ports must be left open in the final stack assembly so that fluids can flow through the stack in use. It is exactly these ports and openings that the present invention is intended to seal, in addition to seals around other parts of the individual cells etc.

What is the Examiner suggesting? Is it intended that some notional sealant, in liquid form, be passed through openings 30, 32 and 36 into the stack and then caused to set or solidify to form a seal? This would completely plug the whole stack with the sealant after it has been cured, so as to render it completely inoperative and of no use. Moreover, these ports do not form part of a groove network intended to be filled with a sealant. Rather, they are connected, for the reactant gases, to flow field channels, and for operation of the cell, it is essential that they remain free and open to fluid flow.

There is no teaching of a "groove network" or a "filling port" for any such network in Schmid et al. that extends through the cell stack, that is entirely separate from flow channels, ports, etc. for reactant gases, so as to leave openings required for ordinary operation of the cell stack free and open for passage of the operating gases etc. As Schmid et al apply the adhesive material in an entirely different manner, e.g to individual elements prior to assembly, it is submitted that this feature is clearly not taught or disclosed by this reference on any interpretation of it.

The Examiner argued that the feature of the seal having been formed in place after assembly of the separate elements does not add anything to the patentability of the product claimed. It is submitted that this feature cannot be totally discounted, and it does provide characteristics present in the product.

Detailed composition of sealing material

Astonishingly, the office action fails to address the feature introduced by way of amendment in Applicant's communication filed February 12, 2007. Thus, claim 28 now calls for the seal material to be selected from a group of materials, with the following language being added to the claim;

"wherein the seal comprises at least one of:
an ethylene/acrylic polymer;
a fluoro elastomer;
an Ethylene Propylene Terpolymer;
a flexible or rigid epoxy resin; and
a thermoplastic elastomer."

None of these materials is expressly disclosed in the Schmid et al. reference. For this reason alone, the Examiners rejection under section 102 must be withdrawn.

Summary

In view of all of the above arguments, it is submitted that the rejection of claims should be withdrawn, and the Examiner should find this application in order for allowance.

Respectfully submitted,

BERESKIN & PARR

By 

H. Samuel Frost
Reg. No. 31,696
Tel: 416-957-1687